MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018 / 2019

PBC0016–BASIC COMPUTING AND PROGRAMMING

(Foundation in Engineering)

6 MARCH 2019
2.30 p.m. - 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **FOUR** printed pages with **FOUR** questions.
2. Answer **ALL** questions.
3. Write your answers in the Answer Booklet.

Question 1

(a) Over the years, the price of computers have become cheaper. How about the direction of computer development in terms of size and power? [4 marks]

(b) A server is a computer dedicated to provide services to other computers in a network. List TWO (2) characteristics of a server computer. [4 marks]

(c) The central processing unit (CPU) in a computer consists of control unit and arithmetic logic unit.

(i) Describe the functions of a CPU's control unit and arithmetic logic unit.

(ii) Machine cycle is the operation performed by the CPU to execute any program instruction. Briefly describe the four steps of machine cycle.

[4 + 6 marks]

(d) Define volatile and nonvolatile memory. Support your answer with one suitable example for each type of memory. [4 marks]

(e) If one page of text is approximately 2 KB, what is the size of a document with 1000 pages of text? Give your answer in MB. [3 marks]

Question 2

(a) What is magnetic tape storage? How is data stored on a magnetic tape? [4 marks]

(b) List down THREE (3) types of input device and support your answer with an example for each type of input device. [6 marks]

(c) Interaction with an operating system (OS) is done through user interface. Describe THREE (3) types of user interface that interacts with an OS. [6 marks]

(d) As an undergraduate student in a university, describe THREE (3) types of application software that can assist you in your studies. [6 marks]

(e) Define the term 'Multimedia'. Support your answer by listing down the FIVE (5) elements of multimedia. [3 marks]

Continued ....

Question 3

(a) Fiber optics cable is a type of physical transmission media used to send communication signals. Briefly describe THREE (3) advantages of using fiber optics cable. [6 marks]

(b) Define the term 'network' and list THREE (3) advantages of a network. [5 marks]

(c) With the help of suitable diagrams, describe TWO (2) types of network topologies in terms of its devices arrangement. [6 marks]

(d) Compare the number of colours per pixel between a 1-bit per pixel and an 8-bit per pixel colour display. Comment on the image difference between the two displays. [4 marks]

(e) Compare TWO (2) differences between lossy compression and lossless compression. [4 marks]

Question 4

(a) Draw a flowchart for an algorithm that prompts the user for their cumulative grade point average (CGPA) and displays the corresponding honours classification. The honours classification is given as below:

Class	CGPA
First	3.67 – 4.00
Second Upper	3.33 – 3.66
Second Lower	2.67 – 3.32
Third Class	2.00 – 2.66
Fail	< 2.00

Table Q4: Honours Classification

(Hint: Use nested if-else statement) [6 marks]

(b) Based on the honours classification given in Table Q4 from Question 4 (a), write a complete C program that prompts user for their cumulative grade point average (CGPA) and prints out their honours classification. Sample outputs are shown in Figure Q4. [6 marks]

```
Please enter your CGPA:3.69
Your honours classification is First Class.
```

```
Please enter your CGPA:2.50
Your honours classification is Third Class.
```

Figure Q4: Sample Output (Bold and underlined denotes user's input)

Continued ....

(c) Identify whether the following variable names are valid in the C Programming language and state the reason if they are invalid.

[6 marks]

(i) _1011
(ii) short
(iii) my_work
(iv) Sierra#
(v) 99speedmart
(vi) Mid valley

(d) Determine the output of the following program. [5 marks]

```
#include<stdio.h>

int main()
{
      int i;

      for (i=80; i>=5; i/=2)
      printf("%d \t",i);

return 0;
}
```

(e) List TWO (2) tools that are used to write and run a C program. [2 marks]

End of Paper